

S • A • G • E ENVIRONMENTAL, L.L.C.

April 15, 2003

Mr. Dan Burton  
Burton Lumber  
2220 So. State Street  
Salt Lake City, UT 84115

RE: Transmittal of Revised Letter Report, Results of Soil Sampling, Burton Lumber  
Property

Dear Dan:

Enclosed please find a **revised** copy of the Report of Limited Phase 2 Soil Sampling near Quinn's Junction, Summit County, Utah. It recently came to my attention that the report contained a typographical error; the results had been presented in the text with incorrect units. The text has been corrected to read mg/kg (milligrams per kilogram) rather than ug/kg (micrograms per kilogram) for the six metals analyzed. The report's conclusions remain unchanged, as do the map and attachments.

I have also provided a copy of the revised text to Ms. Ann Tillia at the UT Department of Environmental Quality to replace the original report that I provided to her on January 30, 2003.

I apologize for this error. Please don't hesitate to call me if you have any questions.

Sincerely,  
SAGE Environmental, L.L.C.

Laurie L. Goldner, Ph.D.  
Environmental Scientist/President

Attachment: April 15, 2003 revised report



S • A • G • E ENVIRONMENTAL, L.L.C.

January 9, 2003 (revised April 15, 2003)

Mr. Dan Burton  
Burton Lumber  
2220 So. State Street  
Salt Lake City, UT 84115

RE: Report of Limited Phase 2 Soil Sampling near Quinn's Junction, Summit County, Utah

Dear Mr. Burton:

SAGE Environmental, L.L.C. (SAGE) is pleased to provide this letter report presenting the results of the limited Phase 2 soil investigation we conducted on the property you own located near Quinn's Junction in Summit County, Utah. The property is shown on Figure 1.

### ***Introduction***

This limited Phase 2 investigation was designed to follow up on recommendations presented in a Phase I Environmental Site Assessment of the subject property prepared by West Star Environmental, Inc. in December 2002. The Phase I identified a single condition of environmental concern: the potential presence of metals contamination in the lower elevation portion of the property which is located in the historic floodplain of Silver Creek. Silver Creek has been heavily impacted by historic mining activities upstream. Recent sampling by the Utah Department of Environmental Quality (UDEQ) had detected elevated concentrations of heavy metals in soil samples collected from the vicinity of the subject property as well as along much of the adjacent Silver Creek drainage (*Innovative Assessment Analytical Results Report, Lower Silver Creek, Summit County, Utah*, UDEQ, dated September 25, 2002). The purpose of this study was to determine if soils on the property have been impacted by metals contamination; no other investigation or analyses were conducted.

### ***Methods***

On December 27, 2002, SAGE collected surface and near surface soil samples from the subject property. Field conditions were sunny and cold, and the property was covered with 6 to 10 inches of snow. This snow cover prevented the selection of sample locations based on visual observations of soil type, vegetative cover, or apparent deposits of mining-related materials. Therefore, the majority of the sample locations were selected to obtain relatively evenly spaced

coverage of the lower elevation portion of the property, while two samples were obtained from the higher elevation portions of the property away from the floodplain.

Individual soil samples were collected using a stainless steel hand auger and were placed in appropriately labeled ziplock plastic bags. Following sample collection samples were placed in a cooler on ice and later transferred under chain of custody to American West Analytical laboratory, a Utah-certified laboratory in Salt Lake City, for analysis. A new pair of disposable nitrile gloves was worn for the collection of each sample, and the hand auger was decontaminated between samples by washing with a brush and an Alconox solution and triple rinsing with distilled water. Field observations were recorded at the time of sampling, and soil samples were later characterized in SAGE's offices by a professional geologist. Sample points were located using a Garmin GPSMAP 76S GPS receiver and were marked in the field with appropriately labeled wooden location stakes.

Based on the geologic characterization, eight soil samples were selected for analysis by American West Analytical Laboratory. The samples were analyzed for total antimony, arsenic, cadmium, lead, mercury, and zinc using EPA methods 6010B (antimony, cadmium, lead, and zinc), 7060A (arsenic), and 7471A (mercury).

## **Results**

Surface and near surface soil samples were collected from eight locations on the subject property: six on the lower elevation portion of the property within the Silver Creek Floodplain and two on the higher elevation portion or upland portion of the property (see Figure 1). The upper elevation portion of the property was dominated by sagebrush, while the lower elevation contained some limited sagebrush as well as evidence of grasses and wetland vegetation, including sedges and cattails. An apparent drainage canal was located just east of the eastern property boundary in the State of Utah Rail-Trail right-of-way. No streams or canals were evident on the subject property.

Table 1 provides field observations as well as a detailed description of the soil samples. Samples were collected from two depths at location BLS-04: 0 – 0.5 foot and 0.5 – 1.0 foot below ground surface.

**Table 1. Field Observations and Geologic Description of Soil Samples.**

Sample ID	Sample Depth (ft)	Field Observations	Soil Description
BLS-01	0 – 0.4	Surface frozen to 0.4 ft., med. – dark brown, abundant grasses and roots with some sagebrush roots.	Very dark (brown) gray/dusky brown, clayey-gravelly silt loam (topsoil with abundant grass roots, etc.), gravel to 2", wet, moderately plastic.

Sample ID	Sample Depth (ft)	Field Observations	Soil Description
BLS-02	0 - 0.4	Surface covered with moss; gravelly loam.	Dark grayish brown to brown, clayey gravel loam (top soil), moderately plastic to plastic, well graded - very fine to medium sand, angular gravel to 2", wet.
BLS-03A	0 - 1.7	Surface comprised of grass and cattails. Frozen upper 2", then moist to wet.	Dark brown, primarily (>70% by volume) root mass. Soil is well graded v. fine through very coarse sand with silt, wet.
BLS-04A	0 - 0.5	Dark brown clayey loam.	Brown, primarily root mass in medium to coarse sand matrix.
BLS-04B	0.5 - 1.0	Light brown sand.	Brown, primarily very fine to fine sand, approx. 10% root mass, wet.
BLS-05	0 - 0.6	Surface covered with grasses, med to dark brown clayey gravelly loam.	Dark grayish brown, gravelly clayey silt (loam), weakly plastic, approx 50% root mass throughout, wet.
BLS-06	0 - 1.0	In/adjacent to small spring, sample >50% root mass, sample location heavily vegetated with grasses, watercress, and sorrel.	Very dark gray to black, silt, poorly graded, sample consists of approx. 90% root mass in silt matrix, wet.
BLS-07	0 - 0.5	Upland area, in sagebrush.	Very dark brown, slightly gravelly clayey silt loam (topsoil), gravel to 1.25", approx. 5 - 10% rootlets throughout, moist.
BLS-08	0 - 0.5	Upland area, in sagebrush.	Very dark grayish brown, slightly gravelly clayey silt loam (topsoil), 5 - 10% rootlets throughout, wet.

Based on the detailed geologic characterization of the samples, eight of the nine samples were selected for laboratory analysis for the six selected metals. Sample BLS-04B (obtained from a depth of 0.5 - 1.0 foot) consisted of light brown sand tentatively identified as potential mine tailings or mine tailings related outwash deposits, and was therefore selected for analysis instead of the sample collected from the overlying layer (BLS-04A). Results of the laboratory analysis of the eight samples are summarized in Table 2, below. Copies of the analytical results reports and the chain-of-custody form are attached.

Table 2. Analytical Results for Soil Samples Collected on December 27, 2002 (in mg/kg).

Sample ID	Antimony <sup>1</sup>	Arsenic <sup>1</sup>	Cadmium <sup>1</sup>	Lead <sup>2</sup>	Mercury <sup>1</sup>	Zinc <sup>1</sup>
EPA Benchmark or Hazard Standard	31	23	39	400	23	23,000
BLS-01	<10	97	57	2,600	13	8,200
BLS-02	<10	58	14	7,100	4.3	2,500
BLS-03A	<10	170	56	6,800	100	10,000
BLS-04B	140	1,200	100	33,000	89	31,000
BLS-05	<10	140	7.5	2,600	4.9	3,900
BLS-06	<10	140	4.4	650	1.5	640
BLS-07	<10	20	1.2	170	0.14	280
BLS-08	<10	9.0	<0.5	20	<0.04	110

Note: <sup>1</sup>EPA Superfund Chemical Data Matrix (SCDM) Benchmark (EPA, June 1996).

<sup>2</sup>The soil-lead hazard standard based on EPA Guidance (40 CFR Part 745, January 5, 2001).

Concentrations in **bold** type exceed the EPA benchmark or hazard standard.

The results presented in Table 2 indicate that samples BLS-01 through BLS-06 contain elevated concentrations of one or more of the metals when compared to the SCDM benchmarks or the lead hazard standard. These six samples were collected from the lower elevation portion of the property on the historic floodplain of Silver Creek. Arsenic exceeded the SCDM benchmark and lead exceeded the hazard standard in all six samples. Cadmium and mercury exceeded the SCDM benchmark in three and two samples, respectively, while antimony and zinc only exceeded the benchmark in a single sample each. Sample BLS-04B contained the highest metal concentrations, and exceeded the applicable SCDM benchmarks/hazard standard for all of the metals tested. Geologic characterization of this sample had shown evidence of a light brown sandy material, potentially related to mine tailings.

In contrast, the two samples collected from the higher elevation portion of the property (BLS-07 and -08) did not exhibit elevated concentrations of any of the metals tested when compared to the benchmarks or hazard standard.

### Discussion

The results presented above indicate that soils on the low lying portions of the subject property contain elevated concentrations of one or more of the six metals tested. Results of the soil sampling were similar to the results of the UDEQ's study of Lower Silver Creek (UDEQ, 2002). This study had identified elevated concentrations of heavy metals in Silver Creek water and

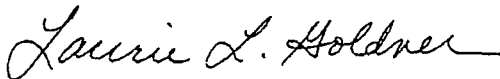
sediments as well as adjacent soil resulting from historical mining and milling activities in the Park City area. In that study, 20 of the 21 soil samples collected from the Silver Creek drainage that were analyzed by the analytical laboratory had lead concentrations in excess of 400 ppm (or mg/kg); the highest reported lead concentration was 36,100 ppm (as compared to 33,000 mg/kg found in this study). All 21 of the samples exceeded the SCDM benchmark for arsenic (23 ppm), and the highest reported arsenic concentration was 870 ppm (1,200 mg/kg was the maximum reported in this study). In contrast, maximum concentrations of the other metals found during this study were lower than those reported by DEQ (antimony [140 vs. 568 ppm], cadmium [100 vs. 295 ppm]; mercury [100 vs. 144 ppm], and zinc [31,000 vs. 60,400 ppm].

### **Recommendations**

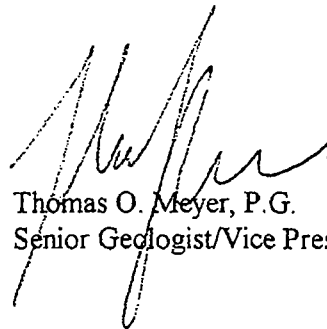
Based on the results of this limited Phase 2 soil sampling study, SAGE recommends that additional soil and (potentially) ground water sampling activities be undertaken to further define the nature and extent of the elevated metals concentrations on the portion of the subject property that is located within the historic flood plain of Silver Creek. The recommended scope of work will be prepared after discussion with UDEQ and EPA Region 8 personnel familiar with the Lower Silver Creek site and knowledgeable about regulatory agency plans for future studies or activities; these recommendations will be submitted to you under separate cover.

Please contact Laurie Goldner or Tom Meyer at 801-322-2050 if you have any questions concerning this report.

Sincerely,  
SAGE Environmental, L.L.C.



Laurie L. Goldner, Ph.D.  
Environmental Scientist/President



Thomas O. Meyer, P.G.  
Senior Geologist/Vice President

Attachments: Figure 1. Soil Sample Location Map  
Chain of Custody Form and Analytical Results Report Sheets